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ABSTRACT

This report evaluates a proposal for using paraprofessionals to assist in the development of agriculture and forestry in the Four Corners Economic Development Region, which includes the states of New Mexico, Arizona, Colorado, and Utah. An improved educational program may be directed towards the more effective use of human, agricultural, and forestry resources through the use of paraprofessionals. The term "paraprofessionals" is defined and their mode of operation is discussed, in addition to noting the training and supervision necessary for programmatic operation. Alternatives are analyzed, recommendations made, and plans suggested for implementation of the proposal. Various tables present the data. (Author/AG)

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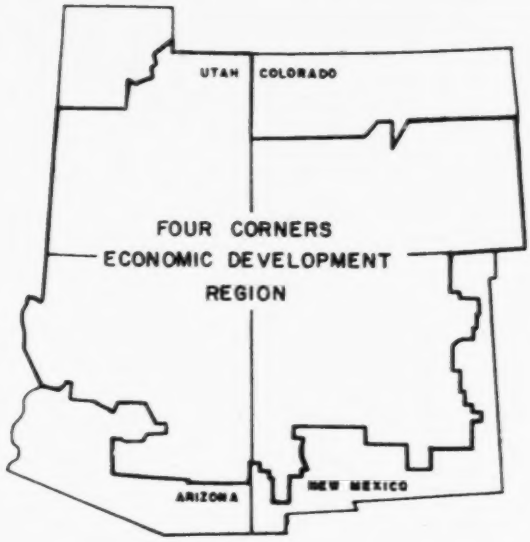
June 1972

• Four Corners Agriculture and Forestry Development Study

Paraprofessionals: An Approach to Education



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Report to
Four Corners Regional Commission

NEW MEXICO STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
In Cooperation with the Stations of
University of Arizona
Colorado State University
and Utah State University

NOV 8 1972

Foreword

Information reported in this publication was developed under Technical Assistance Contract - F.C.R.C. No. 601-366-051 Four Corners Regional Commission, "Development Opportunities for Agriculture and Forestry Resources in the Four Corners Region." The research was jointly financed by the Four Corners Regional Commission and the agricultural experiment stations of New Mexico, Arizona, Colorado, and Utah. The Agricultural Experiment Station at New Mexico State University coordinated the study and served as prime contractor with the Four Corners Regional Commission. The other experiment stations served as subcontractors to New Mexico State University.

This report is one of several special reports on development possibilities for the agriculture and forestry sector of the Four Corners Economic Development Region. In addition to the special reports on resource inventories and development possibilities, there will be a final report.

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Paraprofessionals: An Approach to Education

This report evaluates a proposal for using paraprofessionals to assist in the development of agriculture and forestry in the Four Corners Economic Development Region. The proposition being considered is that through paraprofessionals an improved educational program may be directed to the more effective use of human, agricultural, and forestry resources within the Four Corners region. This report defines the term "paraprofessionals" and discusses their mode of operation and the training and supervision necessary for operation of a program. Alternatives are analyzed, recommendations made, and plans suggested for implementation of the proposal.

Definition of Paraprofessional

A paraprofessional is one who has received limited training in a particular field and is able to teach other people certain techniques or practices that will help raise their level of living. A paraprofessional who is trained in specific agricultural practices is hired to instruct others in current technology. He does not know his subject as thoroughly as the professional and works under the supervision of a professional.

The paraprofessional is usually a member of the local community in which he works. As a community member, his rapport with clientele may be enhanced, resulting in improved communications and, consequently, a more effective educational process. For this reason, the educational and associated development program may be intensified through use of paraprofessionals.

The paraprofessional has certain definable characteristics, some of which are natural and others learned during the training period. Brown and Dildine (1) in their study used the term "indigenous leaders," which is synonymous with paraprofessionals. Here is a summary of their conclusions:

Leadership is a central issue in the training and supervision of non-professional program assistants.

Leadership--
--Is an interaction process
--Must "move" followers
--Is an emergent quality of a group
--Is not static
--Is in a shared sphere of interest
--Requires, to some degree, potential membership in the group
--Is a polarization of members around a central figure who leads the group toward its goals

A leader is a leader only so long as the group allows him to lead.

Paraprofessional leaders are unique, not because of what they have been taught in a formal sense, but because of what they are.

Social Position. The paraprofessional is a peer of the clients, sharing language, ethnic origin, and life style. Because of what and who he is, he can do some things which a professional cannot do. This is especially true when the situation includes people who feel uncomfortable working with professional people.

Know-How. Sharing a common life style provides, not only empathy for problem areas, but also more appropriate analysis of the problems, resources, and alternative solutions. The paraprofessional has, through experience, learned the feeling inherent in the environment and is usually skilled in communicating that understanding across class lines as well as within the life style group.

Style of Life. Paraprofessionals are generally action-minded. They will seek out what to do immediately to relieve crisis situations. They are generally not content to just "talk" the problem away, since it is their problem. While this may not always be viewed as helpful, such a demand stimulates constant re-evaluation, which may inhibit the development of ritualism.

Motivation. When the paraprofessional works among his own peers, "helping others" can more easily be viewed as a reciprocal process.

The training process, to be effective, must take into account the individual's welfare and the welfare of society.

Doing Versus Talking About Doing. Actually, there is not a simple dichotomy here -- a choice between doing and talking about doing. Both are essential -- doing as a built-in laboratory and testing ground, and talking and critical thinking about doing as both a stimulus and an evaluative process.

Supervision. The paraprofessional must necessarily develop his own style; therefore, it is essential that there be opportunity for creative expression and an opportunity for

specific talents to emerge. This can only be accomplished by supervision which acknowledges the worth of each individual.

Schools of Next-Step Technology. At the onset of the program and periodically thereafter, it would be appropriate to provide opportunity for the paraprofessionals to come together, receive assistance in specific problem areas (designated by the paraprofessionals and the groups they serve), share experiences, and contribute to an evaluation of progress. By establishing such "school ," more efficient use of technical assistance from sponsoring agencies may be achieved The paraprofessional can and should work directly with the specialist, learning new skills and adapting old ones to be taken back to the target area for demonstration.

Philosophy Behind the Paraprofessional Approach

A Development Approach

Use of paraprofessionals is an extension of the concept -- "helping others help themselves". The approach to development through use of paraprofessionals is to bring about a change in clientele current behavior patterns and learning devices. Kunkel in his book, Society and Economic Growth (4, p. 311) states, "Any project of 'helping others help themselves,' consists of two major parts. One is a set of activities performed by the subjects or clients, the other is the set of actions in which the change agents engage." In this report, the change agents guiding the subject or clients are the paraprofessionals. A learning process must occur, during which time the behavior patterns gradually change from the old mode into a new process.

There are nine steps involved in using paraprofessionals in an educational process to achieve development. These steps can best be understood by summarizing each one separately (4, pp. 289-307).

1. Specification of industrial, agricultural, and other enterprise: In any development plan, information must be provided concerning the present numbers and types of enterprises and those that are desired at the end of the plan. Labor requirements, expected income, and other factors important to these are specified.

2. Specification of behavior patterns associated with the economic development of a particular community, region, or nation at a certain time: Behavior patterns other than labor activities need to be included as a part of development programs. Savings, investing, purchase and use of consumer goods, and education are all part of a complex behavior pattern. These activities must also be delineated and studied. The end result would be a long list, probably containing several hundred specific activities which describe in detail all of the behavioral requirements for the economic development of a particular social system at a specific time. This is a very individualistic problem, which must be handled by each region; insight may be gained from other regions, but the variables and people in each region are unique. Paraprofessionals can be valuable in helping to specify desired behavior patterns.

3. Specification of existing behavioral patterns and their determinants: Many characteristics of behavior are known in general, but in the development plan, specific characteristics must be distinguished. The frame of reference is not only the nation, but the region and subculture within it. Stimuli are learned and can be expected to vary from group to group; thus, the frame of reference for each activity must be noted to avoid or explain inconsistencies.

4. Specification of incompatible behavior patterns and their determinants: It is important to distinguish all incompatible activities which exist within the group or subculture. For example, "keeping children at home for agricultural labor" is in conflict with "sending children to school". The incompatibility may be direct or indirect, but, in either case, repeated close observations are necessary to evaluate the situation. Superficially "incompatible activities" may turn out to be quite compatible.

5. Shaping, maintenance, and extinction of behavior patterns: The behavioral component of any development program consists of three major parts: shaping new activities, maintenance of old actions, and extinction of incompatible behavior patterns. No development program can shape all the expected activities. Value judgments of the planners and the mood of the area and its leaders will enter into the change and determine the extent of the change.

6. Maintenance and increase of existing behavior patterns: Development programs must maintain behavior patterns which are required for economic growth and increase the prevalence of these activities by having people engage in them more often or by having more people perform them. The prevalence of an activity may be increased in two major ways -- rate or distribution. Rate is the frequency with which an action is performed. Distribution is the extent to which any kind of behavior is evident in a population. Distribution can be increased by establishing new behavior patterns in people.

7. Elimination and decrease of incompatible behavior patterns: Development programs must work towards eliminating or decreasing incompatible behavior patterns which affect the progress of the program. During the process of elimination, the probability of behavior replication is reduced by the application of one or more of three methods: cessation of reinforcement, punishment of the activity, and shaping of incompatible actions. Prevalence of an activity may be reduced by decreasing the rate of performance by individuals or narrowing the distribution of the activity.

8. Shaping and maintenance of "new" behavior patterns: To shape and maintain new behavior patterns, the development program will usually follow this sequence of procedures:
   --Specify the activity to be shaped and delineate the elements which constitute it.
   --Before the shaping begins, specify the approaches that should or can be used, and circumstances in which the activity is to be performed.
   --Begin to shape the activity that is to be established (or its components, depending on whether the action is simple or complex), keeping in mind the following ideas:

- o Eventual success in the establishment of even simple behavior patterns depends primarily on the schedule of reinforcement that was in effect during the learning period.

- o Frequency of reinforcement, by itself, does not guarantee that an activity will be learned; the consistency of events plays an equally important role.

- o Generalized reinforcers such as money, which can be exchanged for a number of other objects, are effective in shaping activity.

- o However well a new activity has been shaped, its maintenance depends upon the continued provision of consistent reinforcers, some degree of deprivation, and the occurrence of the discriminative stimulus that has been established.

- o Illogical though it may sound, a development program can be termed "successful" only when the need for its existence has disappeared.

9. Combination of elements into social, economic, and political programs: Although the steps in changing behavior patterns are many, the need for cooperation and reinforcement among the social, economic, and political programs is great if the development plan is to survive and work. The paraprofessional, through his own training or with the cooperation of professionals, can help the subjects change their behavior patterns and gradually move upward in life style.

Development for Whom

The United States is an affluent society deeply caught up in the process of becoming even more affluent. Along with our growing prosperity as a nation, however, has come an increase in awareness that not all of society has shared equally in the benefits of economic progress. This is particularly true in agriculture, which has a high proportion of low-income persons.

A classification of farms by size of gross sales in the Four Corners Region indicates 9,510 farms (40 percent) had an annual gross farm income of less than $5,000 in 1964 (table 1). For the majority of these farms, there is no hope of becoming viable economic farm units. Many are just too small to provide an income comparable to that provided by non-farm activities. Furthermore, in a number of areas, even consolidation of farm units would not assemble sufficient resources to form viable economic units. Assistance to these non-commercial farmers would, even if successful, yield only marginal increments to their incomes. The possibility of making this group substantially better off through a reallocation of their agricultural and forestry resources is remote.

Farmers in economic classes III and IV (table 1) may achieve an adequate level of living through adoption of resource reallocation suggested by paraprofessionals. Most commercial farmers in economic classes I and II do not need paraprofessional help, nor is it likely they would want this help.

Table 1. Farms classified by size of gross sales in the Four Corners Region, 1964[1]

State	Total Classes I-VI	Farm Size Economic Classes I	II	III	IV	V	VI	Other[2]
	number							
Arizona	1,582	459	198	223	226	224	252	865
Colorado	12,189	1,051	1,474	2,399	2,819	2,577	1,869	4,709
New Mexico	4,454	443	421	568	711	891	1,420	3,878
Utah	5,750	390	611	1,061	1,411	1,559	718	3,899
Total	23,975	2,343	2,704	4,251	5,167	5,251	4,259	13,351

[1]Commercial farms -- Commercial farms were divided into six economic classes on the basis of the total value of all farm products sold as follows: Class I, $40,000 or more; Class II, $20,000 to $39,999; Class III, $10,000 to $19,999; Class IV, $5,000 to $9,999; Class V, $2,500 to $4,999; and Class VI, $50 to $2,499 (provided the farm operator was under 65 years of age, and he did not work off the farm 100 or more days).

[2]Other farms -- Other farms were divided into three economic classes as follows:

a. Part-time -- Farms with a value of sales of farm products of $50 to $2,499 were classified as "part-time" if the operator was under 65 years of age and he worked off the farm 100 or more days.

b. Part-retirement -- Farms with a value of sales of farm products of $50 to $2,499 were classified as "part-retirement" if the farm operator was 65 years old or over. Most of these are farms on which the income from non-farm sources was greater than the value of sales of agricultural products.

c. Abnormal -- All institutional farms and Indian reservations were classified as "abnormal" regardless of the value of sales. Institutional farms include those operated by hospitals, penitentiaries, schools, grazing associations, government agencies, etc.

Source: U.S. Bureau of the Census, Census of Agriculture, 1964, United States Government Printing Office, Washington, D.C., 1967.

Use of paraprofessionals to assist low-income, rural people living in towns and villages is not discussed here as the focus is on development through agriculture and forestry. However, paraprofessionals might also be of substantial benefit to many non-farm, rural people.

Selected Organizations Using a Paraprofessional Concept

Selected organizations which have used the paraprofessional concept are noted below, in addition to a brief discussion of how paraprofessionals were used. Information quantifying the economic benefits derived from use of paraprofessionals was not available.

The concept of paraprofessionals has been used by many agencies. The U.S. Department of Agriculture's Cooperative Extension Service employs paraprofessionals as aides working in their Expanded Food and Nutrition Education Program. This use of paraprofessionals started in 1968 and is currently operating in all 50 states and in the District of Columbia, Puerto Rico, and the Virgin Islands. In September, 1970, a total of 6,683 aides were employed either full- or part-time in the program (3).

In Philadelphia, an organization known as Better Family Planning, Inc., uses the paraprofessional concept to help contact people living in some of the city's deteriorating neighborhoods. These paraprofessionals help explain the idea and concepts of Better Family Planning, Inc., and set up appointments in the clinics operated by the organization (7).

During 1969-1970, eight horticultural paraprofessionals were hired to work with fruit growers in Rio Arriba County, New Mexico (6). The primary objective of this program was to assist the county extension staff in their educational program on a one-to-one basis.

The paraprofessionals aided fruit growers by providing information on:

--Pruning practices based on age of trees, varieties, soils, and climatic conditions.
--The value of soil testing and the importance of basing the fertilization program on the results of soil testing.
--Dormant spraying to control insects before they hatch.

Paraprofessional Training

Selection

Selection of the paraprofessional may be the most critical factor in the success of the paraprofessional program. The criteria for paraprofessional selection should include the indigenous leader characteristics noted on pages 2 and 3. Prior to selection, two questions should be answered:

1. What person or group has enough knowledge of individuals within the community and community styles to assist in the selection process?

2. What are the qualifications which potential paraprofessionals need to serve as paraprofessionals in the community?

Each community will have people knowledgeable of potential paraprofessionals and capable of assisting in specifying qualifications. The county agent should have some knowledge of communities and individuals within the community and could be useful in evaluating potential paraprofessionals. The vocational agriculture instructors in local high schools or county ASCS committeemen could be asked for advice in the selection process. Perhaps the Cooperative Extension Service administration could assist in interviewing candidates to provide consistency to outlined criteria.

Types of Training

After the selection process is completed, the type of training to equip a paraprofessional adequately for work in a community must be determined.

Paraprofessionals need to be well trained and have constant encouragement and support to bolster their confidence and enhance their subject-matter awareness. There are two approaches to paraprofessional training. One approach would be through an extensive training session, and the other through a continuous training program. Choice between the two training approaches would depend upon the objec-

tives to be accomplished and the commodity or subject-matter area in which the paraprofessionals would be working.

Site and Training Personnel

The paraprofessionals could be trained at the state universities in each of the Four Corners states, or one university could be selected for the training site. State universities are selected on the assumption that specialists in the Cooperative Extension Service would provide the training where one concentrated training session is preferred. Use of the university in each state might be preferred for the following reasons:

1. The training personnel would have a better knowledge of the commodities, resources, and conditions in their individual states.

2. The trainees would know the specialists to contact for help. This training approach would open lines of communications from the paraprofessional to the crops, livestock, management, and marketing specialists at their state university.

3. This would spread the training program among four states and avoid overloading any one university with the training function.

4. Funding for the paraprofessional supervision could be handled best through each state's Extension Service.

In a continuing or on-the-job training program, the location would have to be closer to the paraprofessionals' community to be practical. A local-area training program would have the advantage of on-the-job training and a possible lower cost in transporting teachers to the paraprofessionals. This may involve use of facilities available to the county agent. Where the continuing program is feasible, the county agent could be responsible for training paraprofessionals. Extension specialists could assist county agents. However, it might not be possible or necessary for them to attend all training sessions in all the geographic areas or counties having a continuing training program.

Application of Paraprofessionals to Selected Development Possibilities

This report presents a broad concept of paraprofessionals and will serve as an outline and guide to be used with other development possibilities suggested in the Four Corners Agriculture and Forestry Development Plan. Each individual development possibility may have to adapt the paraprofessional idea to the particular type of development with which it deals, but the basic idea of helping others help themselves will remain intact.

Examples of how the paraprofessional program could work using two development possibilities are presented.

Role of Paraprofessionals in Apple Production

The possibility of tree-fruit production has been selected as an example to which the paraprofessional concept may be applied. This example will be limited to apple production.

Paraprofessionals could demonstrate, teach, and educate apple producers in improved production, marketing, and management practices. Areas of production practices which might be taught would depend upon those identified for needed assistance in a given area. Production practices taught could include: pruning techniques, soil management, irrigation timing, fertilization, pollination, frost protection, fruit thinning, pest control, and harvesting methods. Specific areas where paraprofessionals may assist in improving marketing practices include: grading, packing, and better storage facilities. Professional assistance could be introduced to producers by paraprofessionals, particularly in certain areas of apple marketing and orchard management. Through storage, market timing, and logistics, Four Corners apple producers may be able to capture new markets by holding apples for a later sale.

There are 3,871 farms producing apples in the Four Corners Region (table 2). There are 1,018,135 trees on these farms which produce approximately 2,962,609 bushels (42-pound) of apples. The Colorado subregion has the largest apple production, almost 50 percent of the total.

Table 2. Apple production in the Four Corners Region, 1964[1]

State	Farms	Trees	Production
	----------number----------		bushels
Arizona	235	34,187	61,930
Colorado	1,028	541,346	1,618,323
New Mexico	1,645	318,577	724,762
Utah	963	214,025	468,791
Total	3,871	1,018,135	2,873,806

[1]Data is for 1964 with the exception of New Mexico which is 1969.

Sources: U.S. Bureau of the Census, Census of Agriculture, 1964, United States Government Printing Office, Washington, D.C., 1967.
U.S. Department of Agriculture, Statistical Reporting Service and New Mexico Department of Agriculture, Agricultural Statistics, New Mexico Apple and Pecan Survey - 1969, Las Cruces, New Mexico, June 1969.

Paraprofessional needs are estimated for state planning districts. It is estimated that one paraprofessional would be needed for each sixty apple producers (table 3). On this basis, a total of 63 paraprofessionals would be needed -- 3 in Arizona, 17 in Colorado, 27 in New Mexico, and 16 in Utah. Although Colorado has the largest apple production among the four states, it has fewer producers than New Mexico. Therefore, the number of paraprofessionals needed to carry on an educational program would be largest in New Mexico. Figure 1 is a map of the region with each state's planning district numbered, or in Arizona, represented by the county name.

Table 3. Estimated number of paraprofessionals needed based upon produce · numbers by state planning districts in the Four Corners Region

State	Planning District	Number of Producers	Paraprofessionals 1:60 Producers	Bushels Harvested 1964[1]
Arizona	Gila	18		1,661
	Graham	22	1	3,159
	Greenlee	30		254
	Pinal	8		568
	Apache	20	1	11,509
	Navajo	59		34,499
	Coconino	13		8,471
	Mohave	11	1	166
	Yavapai	54		1,643
Subtotal		235	3	61,930
Colorado	11	261	4	171,080
	10	424	7	1,304,927
	9	176	3	96,522
	8	2	0	50
	6	118	2	45,420
	4	11		142
	13	0	1	0
	5	11		65
	7	25		117
Subtotal		1,028	17	1,618,323
New Mexico	1	170	3	160,000
	2	890	15	222,634
	3	246	4	105,170
	4	42	0	15,477
	5	89	1	51,481
	6	208	3	170,000
Subtotal		1,645	27	724,762
Utah	4	527	9	409,642
	5	60	1	2,421
	6	226	4	23,800
	7	67	1	1,346
	8	83	1	31,582
Subtotal		963	16	468,791
Grand Total		3,871	63	2,873,806

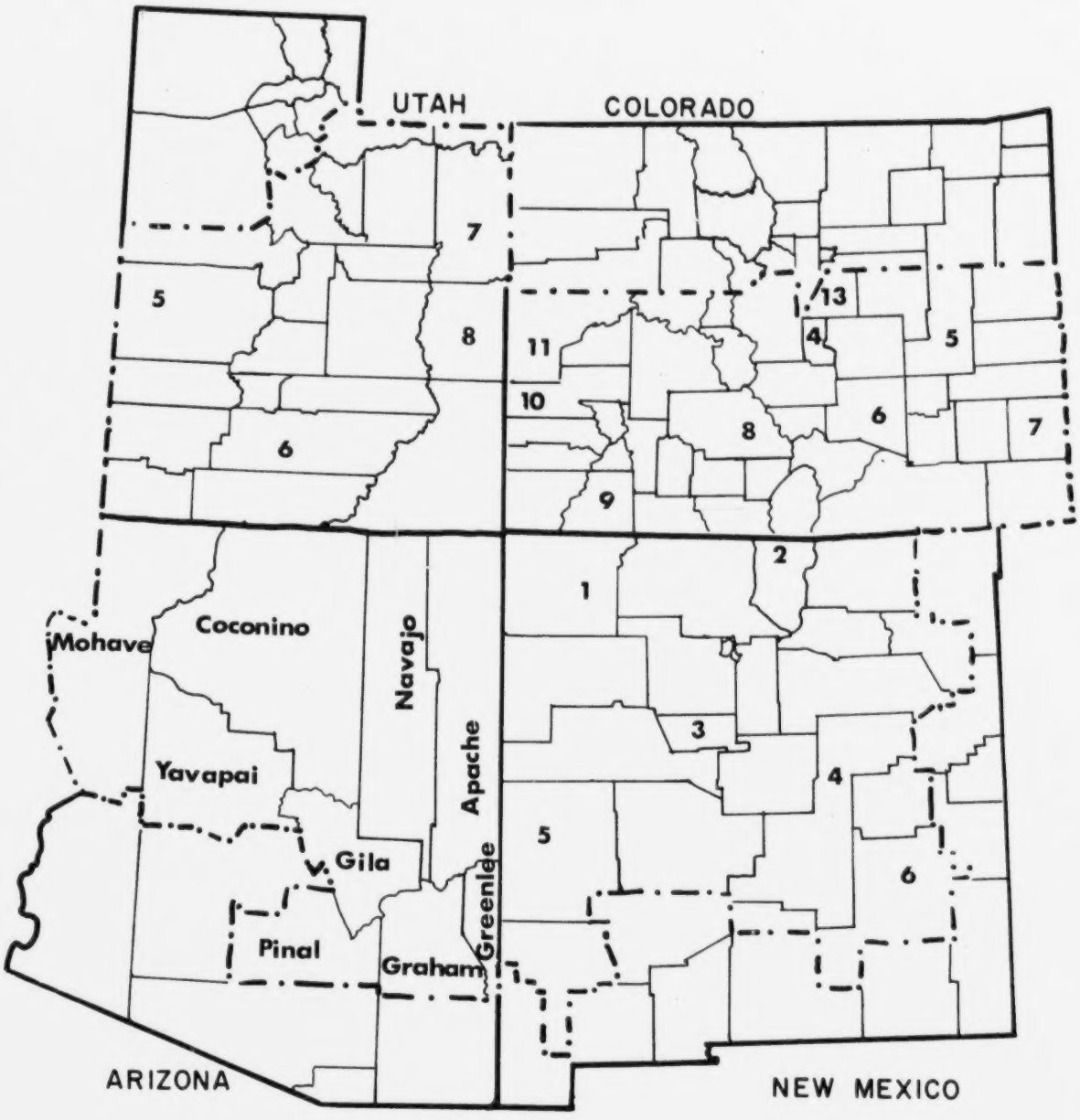
[1]New Mexico data for 1969.

Source: (for number of producers and bushels) U.S. Bureau of the Census, Census of Agriculture, 1964, United States Government Printing Office, Washington, D.C., 1967.

The training method used in the New Mexico orchard management program was a continuous one, in which the paraprofessionals received training each week. They kept ahead of the apple season and gained expertise in specific areas as they went along. The approach to their training, which was conducted by the county agent, appears well suited to an apple production education program. (6)

Estimated costs for the apple paraprofessionals discussed in this report are based on costs incurred in an orchard management program in Rio Arriba County. This particular project was funded by the Four Corners Regional Commission for a period of two years, 1969-1970, and has since been discontinued. In this program, the paraprofessionals were paid $2 per hour and worked an average of 20 hours per week. Travel expenses were paid separately at a maximum of $50 per month per person. The county

Fig. 1. Four Corners Development Planning Districts



agents in charge of the paraprofessionals were not paid extra for training and supervising these men. In addition, the program used the facilities and services of the county extension office free of charge, including secretarial help, office equipment, and supplies. The training, supervision, and use of facilities should be paid for to achieve the most effective performance. These costs are estimated to be $834 per month per 10 paraprofessionals.

Based on the salary and travel costs incurred by the paraprofessionals in the orchard management program and the estimated cost of training, supervision, and facilities, the costs for such a program for the entire region are presented in table 4.

Table 4. Estimated number of personnel required and costs for an orchard management program in the Four Corners Region

State	Number of Paraprofessionals	Monthly Salary[1]	Travel Expenses[2]	Training, Supervision, and Facilities[3]	Total Monthly Cost
			dollars		
Arizona	3	516	150	251	917
Colorado	17	2,924	850	1,418	5,192
New Mexico	27	4,644	1,350	2,252	8,246
Utah	16	2,752	800	1,335	4,887
Total	63	10,836	3,150	5,256	19,242

[1]Based on 4.3 weeks per month, half-time status = 86 hours, $2.00 per hour.
[2]Maximum allowance of $50 per month per paraprofessional.
[3]Estimated to $834 per month per 10 paraprofessionals.

Possible funding sources might include the Federal Extension Service, U.S. Department of Agriculture, or the Four Corners Regional Commission. The objectives of a program for improvement in apple production carried out by apple paraprofessionals may require several years for achievement. Changes in people are not always readily brought about and often need reinforcement.

Role of Paraprofessionals in Range Improvement

Range improvement has been chosen as another potential area for use of paraprofessionals. Programs to improve range resource productivity can have an influence on all rural people who live in range areas. The livestock industry is a predominant agricultural business in the Four Corners Region, and range land accounts for 80 percent of all land use in the region (2). Therefore, range improvement would enhance economic opportunity for livestock activities in which residents are now engaged.

Range improvement possibilities evaluated for feasibility in another special report (5) include: reseeding ranch land, controlling competitive shrubs, drilling stock wells, constructing steel-rim water storage tanks, constructing earthern stock reservoirs, installation of plastic range pipelines for better distribution of stock water, and construction of wire fences. Assuming these range improvements are a feasibile

method of increasing the efficiency of the range resource, what role could the paraprofessional play in the implementation of these range improvement possibilities?

Paraprofessionals could play an important role in the dissemination of range improvement information directly to ranchers. They could also provide the ranchers with information on the alternative ways of financing, including cost-sharing programs for range improvements. Paraprofessionals could assist ranchers in assessing the feasibility of range improvements and in making plans to implement those improvements determined to be feasible.

A number of agencies concerned with range land have personnel who perform similarly to the paraprofessionals described above. These programs should be expanded, and additional paraprofessionals should be supervised through the Cooperative Extension Service. Those paraprofessionals working through the Extension Service would have the administrative flexibility to work with ranchers holding Forest Service leases, state leases, Bureau of Land Management leases, private land, or any combination of range land ownership. If one of the governmental agencies supervising public grazing land sponsored and funded the paraprofessional program, it might be limited to the range land under their supervision.

Cost-sharing programs now in existence should be considered for expansion, and additional cost-sharing programs might be implemented through public agencies administering range land. Benefits from range improvements would be to sectors other than ranchers (tourists, sportsmen, and public watersheds, for example). Therefore, the costs of these improvements might be shared by the public. The paraprofessionals themselves would be the initial public sector input, accounting for the multiple public benefits from range improvements.

Range improvements would also be facilitated if ranchers knew they could graze more livestock on range land after improvements have been made. In addition, they would adopt improvements more rapidly if they had assurance that they could retain the right to graze the improved range for a reasonable length of time -- as long as the pay-off period for the range improvements. The Agriculture Stabilization and Conservation Service in many areas has generalized plans available for range land development. These plans could be readily detailed for individual ranchers in conjunction with a paraprofessional, thereby, speeding up the possible adoption process. (It should be noted that recently the ASCS has changed its emphasis from improved production to environment.)

Pay-off from Paraprofessionals Used in Range Improvement

Data were not available to estimate the number of acres that need range improvements. Therefore, the number and cost of employing paraprofessionals for range improvement work at this time were not evaluated.

Further complications in trying to estimate paraprofessional costs are the multiplicity of organizations and policies involved in grazing range lands. However, several factors in using paraprofessionals for range improvement possibilities which relate to costs and pay-offs will be discussed.

If total additional income generated from range improvements was selected as the only pay-off criterion, paraprofessionals might appear successful. According to this criterion, range improvements could be made on several large ranches and large amounts of additional income could be forthcoming; however, management of large ranches may be at such a level that the need for paraprofessional help would be very minimal. Perhaps all that is needed for this ranch size are policy and financial incentives, either by cost-sharing or loans. A greater need may exist for paraprofessionals in assisting with range improvements for the smaller subsistence rancher. Perhaps the pay-off in the form of total additional income generated from range improvements would be lower than in assisting larger, commercial-size ranches. However, the subsistence rancher's income might be slightly increased, thus giving him a greater economic opportunity.

Paraprofessional Potential

A paraprofessional program would have to be developed as a means of more rapidly advancing each development possibility. The program is not a general suggestion, but a program to be operated in conjunction with specified development possibilities. The nine steps involved in the process of achieving economic development are indicative of the facilitating and catalytic role paraprofessionals may have (see pages 3 to 5).

Paraprofessionals can effectively assist and advance the development process. However, the more technical aspects of a development process must be done by individuals with professional training and experience.

The purpose of the paraprofessional concept is to provide expertise in specific areas for a period of years. After this time, individuals should have gained enough knowledge to increase the efficiency of their production, marketing, and management practices. They may also be able and willing to communicate with professionals at the end of this period.

The paraprofessional or local citizen-consultant may assist in certain development efforts in the following manner. He could play a significant role in bridging the idea-to-action gap in communities with limited or non-existent planning capabilities. The local citizen-consultant (paraprofessional) could assist in citizen awareness preparation, in surveying the nature of the problem, and in organizing for action in a capacity that often is not possible for professional people to accomplish alone. In addition, the paraprofessional could provide information and facilitate local planning group attempts to solicit federal, state, and private funding for projects undertaken.

Alternatives to the Paraprofessional Approach

Certainly before concluding that paraprofessionals are the only, or even the most efficient method of helping improve living levels, the clients' need and desire for increases in their living levels should be identified.

In the identification of the client to be assisted, the following categories might prove helpful: commercial farmers; semi-commercial farmers; and rural non-farmers. For purposes of this alternative, commercial farmers are defined as farmers whose present resource allocation is near optimum and yields an adequate life style level. Semi-commercial farmers are defined as farmers whose resource allocation is substandard and which, if improved, would yield a more adequate level of living. Some may have off-farm work and their off-farm income is adequate and yet want to live on a farm. Rural non-farmers are defined as those people in a rural setting who are engaged in trades, services, or occupations other than farming and may or may not have an adequate life style level.

The commercial farmers, as defined above, would not need nor likely want paraprofessional help. Farmers on this managerial level already know the channels of communication and where expert or professional help can be obtained. It is also unlikely that persons from this group could be induced to work as paraprofessionals, as they are presently fully employed.

The semi-commercial farmer, as defined, could possibly utilize paraprofessional help. The paraprofessional would likely come from this group since some of these farmers may be underemployed and might utilize the paraprofessional position as a second job. Definitely it would be inappropriate to generalize that paraprofessionals are the best or only way to introduce new technology and techniques to semi-commercial farmers. Farmers may not want to admit to their neighbor, the paraprofessional, that they are ignorant of technology and techniques and need help, whereas they might readily accept help from an outsider. This conflicts with the paraprofessional concept and is rejected in general.

Paraprofessionals might also be used to advise people living in rural areas about off-farm opportunities. The logical supervisory agency here would be the state employment services (title varies by state). The agricultural and forestry industries in the Four Corners Region cannot provide adequate income and employment in and of themselves for all people who wish to be engaged in these industries. Information concerning alternative employment and income opportunities would be a useful and low cost service through paraprofessionals.

Presently, there are several mechanisms which could be used in present forms or altered slightly to provide help to the semi-commercial farmer. The first of these is the county agent, whose present charge includes contacting and informing semi-commercial farmers, among others, of approaches to enhance their level of living. Perhaps it would be advisable to assign additional agents so that more time could be allocated to the semi-commercial farmer who needs assistance. Another

possibility for extending assistance to semi-commercial farmers would be the local high school agriculture teacher. Funding from the Federal Extension Service might be available to each state, whereby those instructors could devote some of their time to helping the semi-commercial farmer in their community. Other possibilities might include Farmers Home Administration, Soil Conservation Service, and Forest Service personnel who could be funded for paraprofessional work in their local communities.

Recommendations

The use of paraprofessionals as an approach to education in a reallocation of agriculture and forestry related resources can be of assistance in Four Corners development. Development involves changing behavior patterns. For this to occur, a learning process must take place. An extra effort is required to overcome the momentum of the old methods before proceeding to a new process. The paraprofessional approach should be a part of the required "critical mass."

The nine steps involved in the process of achieving economic development (pages 3 to 5) are basically a procedure for shaping and maintaining "new" behavior patterns. Paraprofessionals should take an active role in specification of incompatible behavior patterns and their determinants. The paraprofessionals themselves comprise one part of a program approach to agriculture and forestry development. However, they should also be active agents in achieving the total combination of elements into social, economic, and political development programs.

Paraprofessionals will not be able to assist all farmers to earn adequate incomes. Many will be only marginally better off. The more than 9,000 farmers in economic classes III and IV (gross farm sales of $5,000 to $19,999) have sufficient resources that educational efforts in agriculture and forestry resource reallocation should yield more adequate life-style levels.

Paraprofessional assistance may be readily offered to communities in need of development assistance and planning. Furthermore, employment assistance may be proffered through paraprofessionals to the enhancement of rural well-being.

The Cooperative Extension Service is best equipped to administer a paraprofessional program in the Four Corners Region. Training should be considered on an individual program basis. A general purpose paraprofessional is non-functional. Primary funding may be available through increases in the budget for the Cooperative Extension Service, the U.S. Department of Agriculture, and the Four Corners Regional Commission.

The Four Corners Regional Commission should take the leadership in developing and assisting other agencies to develop paraprofessional programs. Initial use of paraprofessionals should be directed to those development possibilities given highest priority.

Paraprofessional programs should be initiated only in areas where local assessment determines an interest in and pay-off potential from this type of education approach.

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